A NEW SPECIES OF *ELSIANUS* FROM TEXAS AND MEXICO, WITH RECORDS OF OTHER SPECIES IN THE UNITED STATES (COLEOPTERA: DRYOPOIDEA: ELMIDAE).

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ABSTRACT

Records of the 2 U.S. species, *Elsianus moestus* (Horn) and *E. texanus* Schaeffer, are cited from Arizona, Texas, New Mexico, and Coahuila, Mexico. *E. shoemakei* n. sp. is described from Del Rio, Texas (type locality) and El Cariño (25 mi. west of Monclova), Coahuila, Mexico. It is smaller than any species known from Mexico or the United States (3.1-3.8 mm long and 1.2-1.5 mm wide), possesses unique genitalia, and differs in other details from previously known species. It seems closest to *E. striatus* Sharp.

INTRODUCTION

Two species of *Elsianus* have been reported previously from the United States: *E. moestus* (Horn) (1870), originally included in the genus *Elmis*, described from the San Pedro River in Arizona, and *E. texanus* Schaeffer (1911), from Devil's River, Texas (Sanderson 1953-54). Each was described from a single specimen. I have encountered no subsequent records of *E. moestus*, although I have collected specimens (apparently representing this species) from several localities in Arizona (2 from the Rio San Pedro in Cochise Co., 22-VIII-67 which, unfortunately, were lost; 1 adult and 2 larvae from Bloody Basin, Yavapai Co., 18-IV-69; 2 from the East Verde River near Payson in Gila Co., 8-VII-69). The only other published records of *E. texanus* I have seen are those of Burke (1963), who reported it from Devil's River in the vicinity of the Highway 90 bridge and from a small stream 5 miles east of Camp Wood, Texas. I have collected it from both of these sites (that portion of Devil's River is no longer suitable habitat, as a result of the construction of a large dam), and from the following additional localities in Texas: Devil's River further upstream, Val Verde Co.; San Marcos River, Hays Co.; Limpia Canyon, Jeff Davis Co.; Guadalupe River, Kerr Co.; Blanco River, Hays Co.; Nueces River, Uvalde Co.; San Saba River, Menard Co.; Onion Creek, Travis Co. I have also collected *E. texanus* at Sitting Bull Falls, Eddy Co., New Mexico, as has Clark W. Beasley, and at a number of sites in Coahuila, Mexico between Ciudad Acuña, Piedras Negras, and Ciudad Allende.

All of these streams appear to have a high calcium content, in many cases with typical travertine deposits. Since *E. texanus* shares this habitat with the limnichid, *Lutrochus luteus* LeConte, it might reasonably be sought in the other localities listed for *Lutrochus* by Brown and Stoaks (1970). The late instar larvae of *E. texanus* seem relatively tolerant of adverse environmental conditions; one is alive at this writing, after more than 20 months on my desk in a 2 oz plastic jar containing a travertine

encrusted pebble from its original habitat in Devil's River and kept in water no more than a few millimeters deep.

In Mexico, 6 other species of *Elsianus* have been recorded: *E. grandis* Hinton, *E. graniger* Sharp, *E. sandersoni* Hinton, *E. scutellaris* Hinton, *E. striatoides* Hinton, and *E. striatus* Sharp (Blackwelder 1944, Hinton 1940). All of these reports are from the states of Mexico and Morelos in central Mexico. Several other species are known from other Central American countries, and many more from South America. Among specimens I have collected, there are additional undescribed species, but I am sending all this material to Dr. H. E. Hinton, who is undertaking a revision of the genus. With apologies to him, but because of a prior commitment, I am here describing one new species which I have found in considerable numbers in San Felipe Creek within the city of Del Rio, Texas and in the Rio Salado west of Monclova, Coahuila, Mexico. Both of these streams are delightfully clean and clear.

I take pleasure in naming this new species in honor of Mr. Charles M. Shoemake, who assisted and accompanied me on many dryopoid collecting trips in Oklahoma and on my first expedition to Mexico.

Elsianus shoemakei Brown, NEW SPECIES
(Fig. 1-3)

Male: length 3.1 to 3.8 mm, width 1.2 to 1.5 mm. Cuticle granulate, shining, and black; antennae and tarsi rufous; palpi rufo-testaceous.

Head without distinct impressions; surface with granules subequal to facets of eyes, separated by about their own diameters. Antenna 11-segmented, basal segment longest, apical segment next longest; segments 2 to 4 decreasing in length, 4 or 5 to 10 increasing in length. Clypeus feebly and arcuately emarginate, with broadly rounded angles; sculptured like head, but with granules somewhat flatter. Anterior labrum margin straight medially, slightly arcuate toward sides, angles broadly rounded; sides and angles with both acute and blunt, testaceous hairs 30-45 μ long. Apical segment of maxillary palp ovate and almost as long as first 3 segments combined; galea and lacinia terminating in dense brushes of curved, medially-directed testaceous hairs or spines. Labial palp with apical segment subequal to that of maxillary palp. Mandible well developed, with 3 subacute apical teeth; prostheca large, membranous, flattened, bearing numerous fine hairs on its surface and about 5 prominent spines apically.

Pronotum broader than long (1.0 mm long, 1.15 mm wide), broader at base (1.0 mm) than apex (0.88 mm); broadest slightly behind middle. Sides arcuate, slightly sinuate just at base; apical margin broadly arcuate, deeply sinuate on each side above eyes; apical angles produced; lateral margin crenate, slightly explanate; basal margin bisinuate, emarginate before scutellum. Surface granulate, the granules very much like those on head; invested with short, fine, pale hairs. Sublateral carina flattened, obsolete near apex. Disc with no appreciable median longitudinal depression or gibbosity. Base, just anterior to scutellum, with a short, shallow depression, on each side of which is a small fovea.

Scutellum small, convex, almost circular but slightly acute at apex (about 0.17 mm wide); surface with granules and hairs as on pronotum.

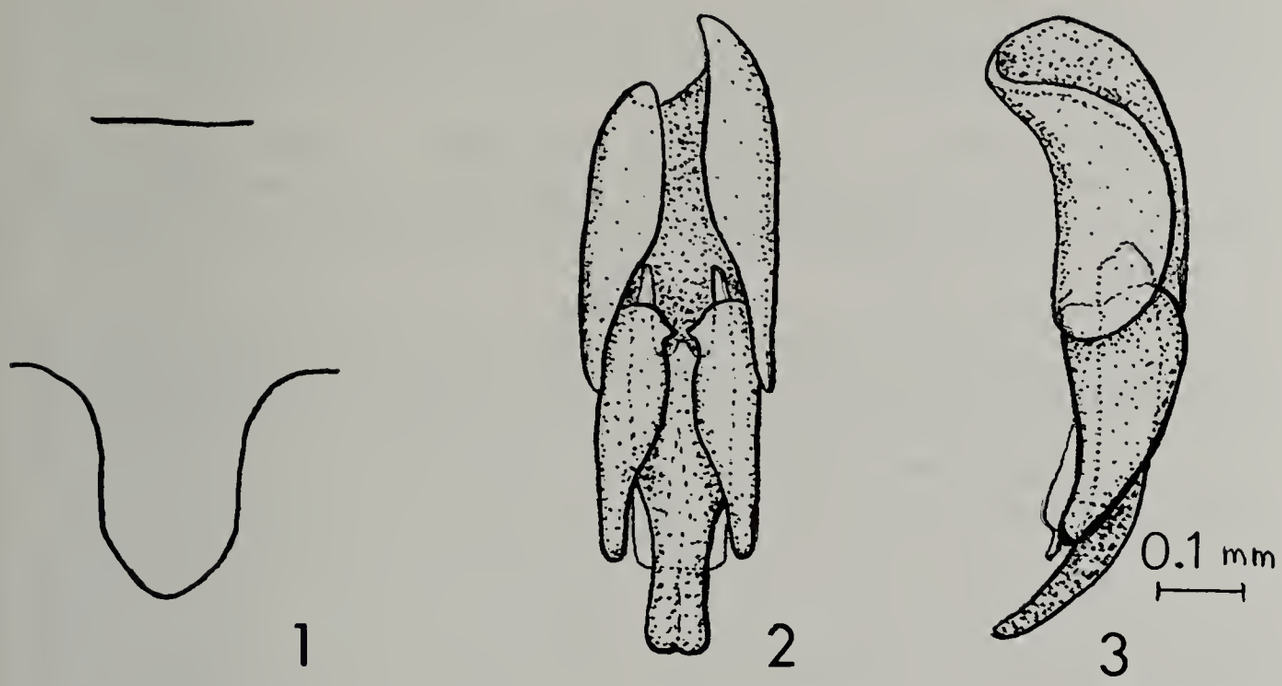

Fig. 1-3: *Elsianus shoemakei* n. sp. 1. Outline sketch of prosternal process (The transverse line above shows the relative position of the anterior prosternal margin). 2. Dorsal aspect of male genitalia. 3. Lateral aspect of male genitalia.

Elytra twice as long as width at humeri (2.5 mm long, 1.2 mm wide across humeri), the widest point (1.4 mm) near apical three-fifths. Lateral margins finely crenate, slightly explanate; apices feebly produced. Discal striae distinct, the punctures rather coarse; intervals flat to feebly convex. Surface granules less prominent to obsolete on disk, those toward sides and anterior comparable to pronotal granules, as are the hairs.

Prosternum (Fig. 1) with process bluntly rounded at apex and shallowly excavated at base; surface somewhat more coarsely granulate than pronotum. Mesosternum with a shallow transverse depression posterior to groove which receives prosternal process. Median depression of metasternum shallow, broad, and continuous with that of first abdominal sternite. Abdominal sternites without carinae. Surface of mesosternum, metasternum, and abdominal sternites coarsely granulate, with oblong granules. Postero-lateral margin of fifth abdominal sternite produced on each side to grasp elytra.

Genitalia (Fig. 2, 3) with median lobe elongate, flattened, decurved, and extending well beyond apices of parameres.

Female: externally similar to male.

Type: male in the Stovall Museum of Science and History, Norman, Oklahoma. UNITED STATES: San Felipe Creek in Del Rio, Val Verde County, Texas; elevation about 1,100 feet; 27-V-69, H. P. Brown.

Paratypes: 6 adults with same data as type; 15 adults at same locality 26-VIII-67; MEXICO: Rio Salado at El Cariño, Coahuila (about 25 miles west of Monclova), 35 adults, 17-VIII-70, H. P. Brown and 84 adults 3-IX-70, B. W. Miller. Paratypes will be deposited in the following collections: British Museum of Natural History, London; U. S. National Museum of Natural History, Washington; California Academy of Sciences, San Francisco; Illinois Natural History Survey, Urbana; University of Nevada, Las Vegas; and Stovall Museum of Science and History, Norman, Okla-

homa. Numerous larvae were taken in association with the adults in each locality, but these have not been sorted to species (some of the larvae may well be those of *Elsianus texanus*).

Variation: aside from variation in size within the range given above, the only noted variation of potential significance was the shape of the prosternal process: apex subacute in some specimens, with relatively prominent apical angles.

Comparative notes: This new species is conspicuously smaller than either of the previously known U.S. species, being well under 4 mm long (averaging about 3.4 mm), whereas *E. texanus* and *E. moestus* range from about 4 to a little over 5 mm. In size, *E. shoemakei* is more comparable with *E. graniger* Sharp (1882), which ranges from 3.4 to 4.0 mm and occurs in Costa Rica and central Mexico, and *E. striatus* Sharp (1882), which ranges from 3.3 to 4.5 mm and occurs in Guatemala and central Mexico. From *E. graniger* it differs in lacking a prominent pronotal gibbosity anterior to the scutellum, and from *E. striatus* it differs in being much more slender (greatest width 1.2-1.5 mm, in contrast with 1.5-1.8 mm). From these and all other known species, *E. shoemakei* differs in details of the male genitalia. It appears to be closest to *E. striatus*.

In Hinton's (1940) key to the Mexican species of *Elsianus* on page 264, *E. shoemakei* would key to *E. striatus*. The key may be adapted to include it with the following changes: in the first half of couplet 4, delete everything after the word "tarsi" and insert the guide numeral 6.

At the end of the key, add couplet 6 as follows:

6(4). Male genitalia with median lobe barely extending beyond apices of parameres, in dorsal aspect with apical fourth slender, no broader than either paramere. GUATEMALA, MEXICO ..... *E. striatus* Sharp

6'. Male genitalia with median lobe projecting conspicuously beyond apices of parameres, in dorsal aspect with apical fourth fully twice as broad as either paramere. UNITED STATES (Texas), MEXICO (Coahuila) ..... *E. shoemakei* Brown, n. sp.

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